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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,534	04/15/2008	Fredrik Adilstam	NOBELB.230NP	5459

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KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER

SELLMAN, CACHET I

ART UNIT	PAPER NUMBER
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1715

NOTIFICATION DATE	DELIVERY MODE
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03/22/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
efiling@kmob.com
eOAPilot@kmob.com

Office Action Summary	Application No. 10/573,534	Applicant(s) ADILSTAM ET AL.	
	Examiner CACHET I. SELLMAN	Art Unit 1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/27/2006,09/27/2007,05/26/2010,12/06/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 12 and 13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable or linking claim. Election was made **without** traverse in the reply filed on 12/17/2010.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the **abstract not exceed 150 words in length** since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The abstract is more than 150 words.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

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- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The specification should include section headings as shown above.

Claim Objections

4. Claim 1 is objected to because of the following informalities: In lines 9-10 of the claim it states "applying a dispersion with a viscous liquid the surface..." the line should read "applying a dispersion with a viscous liquid to the surface..."

In line 12 of claim 1, "a" should be inserted after the word "surface".

5. Claim 3 is objected to because of the following informalities: In line 1 it states "The method as in patent claim 1..." the word patent should be removed from the claim.

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6. Claim 5 is objected to because of the following informality: In line 3 there seems to be a typographical error the word "formers" is misspelled and should read "formers."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 recited the limitation "the particles" In line 16. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 4 recites the limitation "the particles for pore formation" in line 2. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 5 recites the limitation "the ceramic particles and the pore formers" in line 3. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 7 recites the limitation "the dry substance content" in line 3. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 8 recites the limitation "the variation or variations in the pore structure of the layer" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. Claim 8 depends from claim 1; claim 1 does not require

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any variation in pore structure. The Examiner believes the claim should depend from claim 7.

14. Claim 9 states "the layer changes along the extent of the thread between the internal and external diameters," it is unclear as to how the layer or what property varies along the thread.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a

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later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 1, 3, 6, 7, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kijima et al. (US 4983182).

As to claim 1, Kijima et al. discloses a process for providing a porous layer of alpha-tricalcium phosphate and zirconia onto a ceramic substrate made of zirconia where the substrate is an implant material for the living body such as an artificial tooth root (see col. 1, lines 5-27). The ceramic layer having a porosity is formed on the surface by applying a dispersion with a viscous liquid (water), to the surface and sintering the dispersion to form a ceramic layer where the intermediate spaces are formed by driving off the water and the dispersant (see Example 12).

Kijima et al. fail to state that the ceramic substrate has a first porosity or that the porosity of the ceramic layer has larger or more pores than the first porosity found on the ceramic substrate. However, Kijima et al. teaches part of the slurry used to form the ceramic layer is absorbed into the ceramic substrate (see col. 5, lines 26-35). The definition of absorb is to take something in through pores or interstices, therefore the ceramic substrate must have some degree of porosity in order for the slurry to be absorbed.

As to the second porosity having more pores and/or larger pores than the ceramic substrate limitation, Kijima et al. states the importance of having a larger porous ceramic layer because it affects the biological activity of the layer as well

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as crack formation in the layer (see col. 5, lines 5-21). Therefore it would have been obvious to one having ordinary skill in the art through routine experimentation to provide the ceramic layer with larger or more pores than the ceramic substrate in order to ensure the greatest biological activity and prevent cracking and delaminating of the layer from the substrate as desired by Kijima et al.

As to claims 3 and 6, the ceramic substrate is pre-sintered (see Example 1) and zirconia and hydroxyapatite are mixed into the dispersion (see Example 12). Kijima et al. does not state the particle size of the ceramic material. However, it would have been obvious to one having ordinary skill in the art to use the claimed range through routine experimentation because it is stated that the powder size determine the porosity of the final layer which affects the bioactivity of the layer therefore in order to achieve the desired surface morphology in the dental implant.

As to claim 7, the thickness of the layer is varied since it contains pores meaning some areas of the layer is thicker than others due to the variation of the particles.

As to claim 9, Kijima et al. teaches the substrate can be an artificial tooth root which inherently has a threaded portion, since the layer is porous the thickness of the layer varies.

As to claim 10, the dispersion is applied by immersion (see col. 5, line 30).

As to claim 11, the dispersion comprises water (see Example 12).

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19. Claims 2, 4, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kijima as applied to claim 1 above in view of Apte et al. (US 5902429).

The teachings of Kijima et al. as applied to claim 1 are as stated above.

Kijima et al. fails to teach the use of a pore former to form the pores in the ceramic layer as required by claim 2.

However, it was well known in the art of forming ceramic layers that the inclusion of a pore former is beneficial in that it helps in controlling the pore size and porosity of the final product as well as contributes to forming uniformly distributed pores in the surface as taught by Apte et al. (see col. 9, lines 7-17 and claim 14). Apte et al. teaches the pore formers can be graphite or starch (see claim 14) and are driven off by the furnace.

It would have been obvious to one having ordinary skill in the art to modify the process of Kijima et al. to include a pore former as taught by Apte et al. in order to control further control the pore formation and provide uniformly distributed pores within the ceramic layer. Apte et al. does not state the particle size of the pore forming material. However, it would have been obvious to one having ordinary skill in the art to use the claimed range through routine experimentation because it is stated that the powder size determine the porosity of the final layer which affects the bioactivity of the layer therefore in order to achieve the desired surface morphology in the dental implant.

As to claim 5, Kijima et al. teaches the dispersant can be an acrylic polymer (see col. 3, lines 44-57 of Kijima) and in combination with Apte et al. teaches using a pore former which can be driven off.

As to claim 8, Apte et al. teaches various pore formers that can be used (see claim 14), it would have been obvious to one having ordinary skill in the art to use different pore formers depending on the desired porosity of the ceramic layer in order to effectively promote bioactivity.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CACHET I. SELLMAN whose telephone number is (571)272-0691. The examiner can normally be reached on Monday through Friday, 7:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cachet I Sellman
Examiner
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/Cachet I Sellman/
Examiner, Art Unit 1715